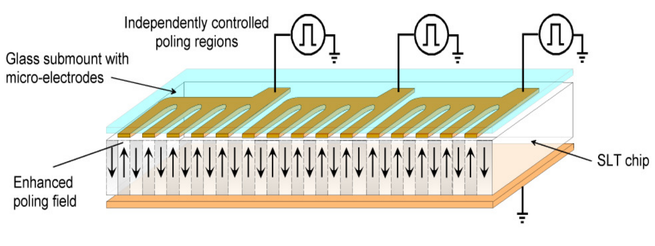
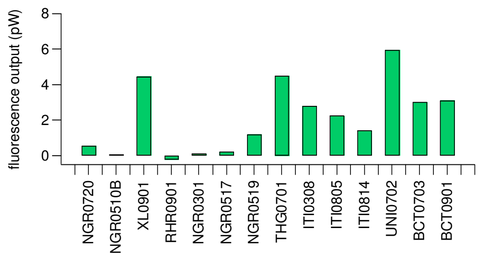
Capability: Optical devices and systems using domain engineered nonlinear optical materials

- Hydrothermal and flux grown **KTP** (potassium titanyl phosphate),
- Doped and non-doped **SLT** (stoichiometric lithium tantalate),
- Mg doped (5%) **LN** (lithium niobate)

Research interest:

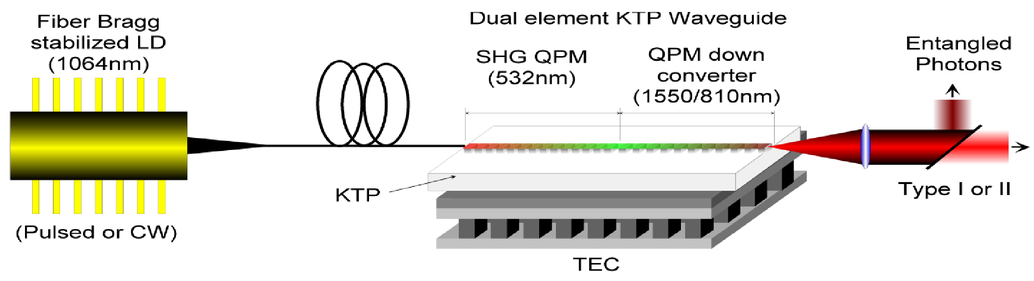
- Development of on-demand single photon sources.
- Compact UV sources for ion/atom trapping
- Design and fabrication (exchange and ridge) of low loss (coupling and transmission) NLO waveguides.
- Integrated multi-element waveguide structures.
- Low-loss, high speed switching.

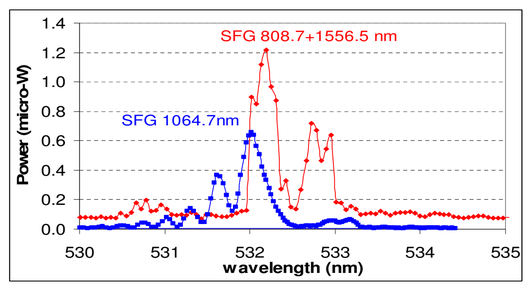




Versatile poling technique and accruing knowledge of substrate performance variations provide a foundation for advancing non-electronic implementations of MQCO.

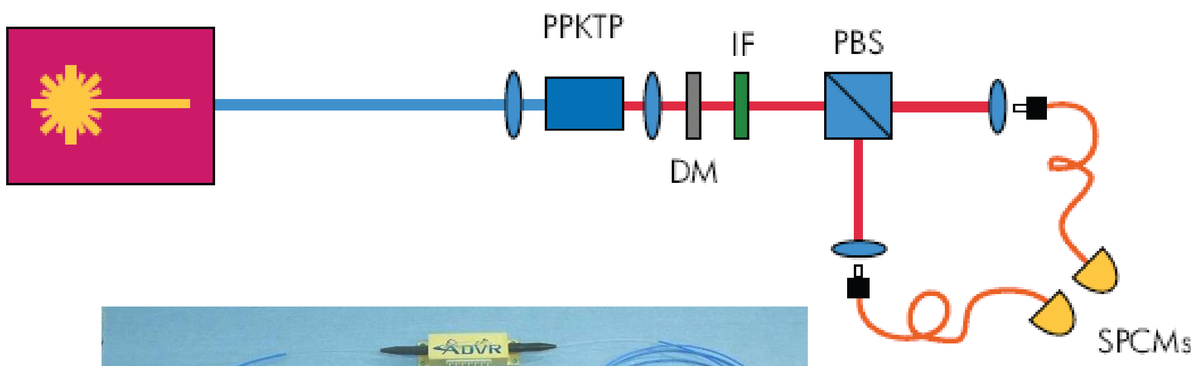
Multi-Element Waveguide Structures

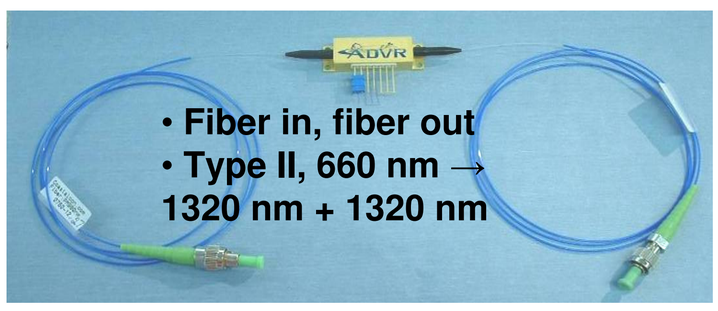




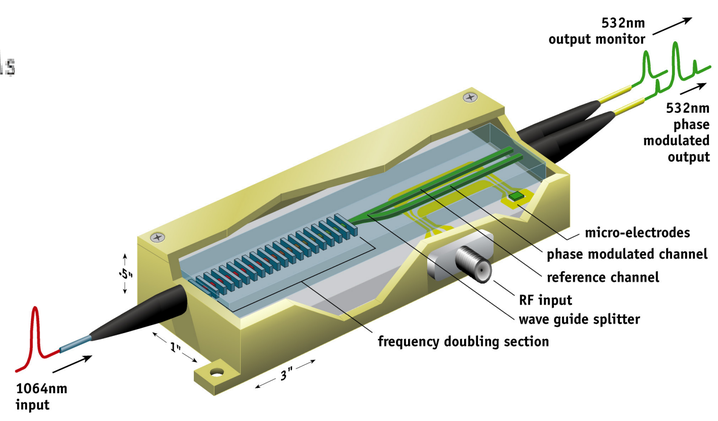
SHG + Down Conversion

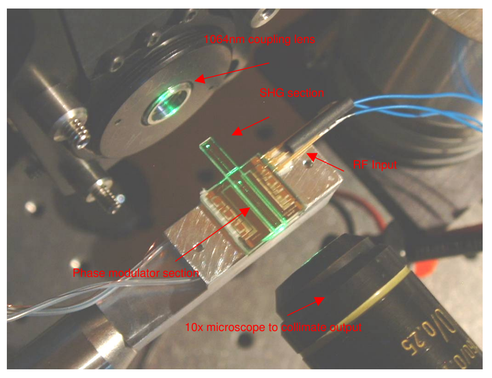
Waveguide-based SPDC source

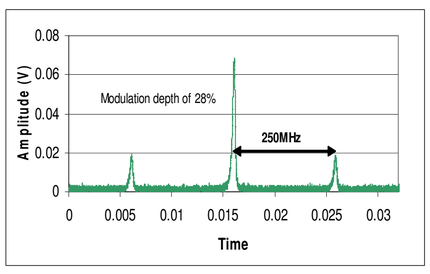




SHG + Phase Modulator





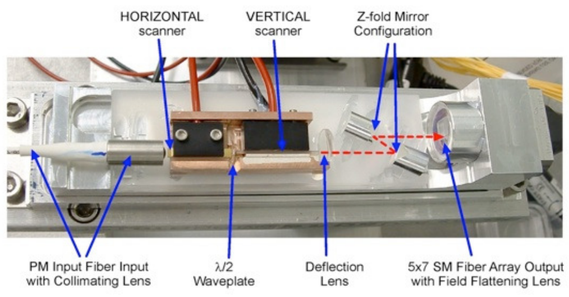


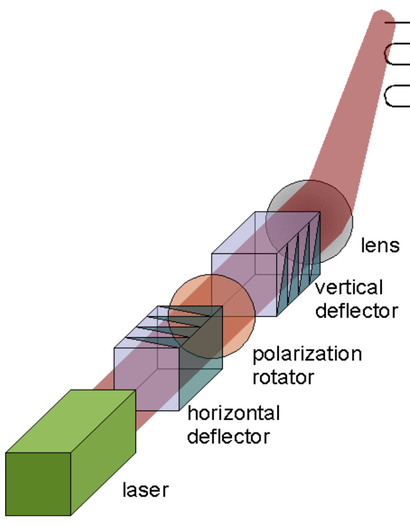
Beam Deflection Technology

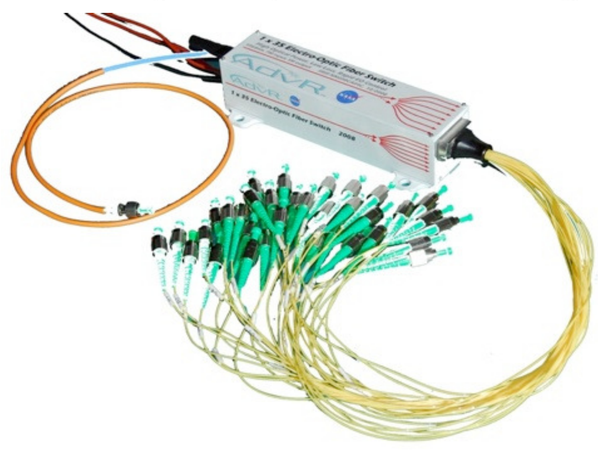
Triangular prisms are made up of reversed ferroelectric domains

The refractive index depends upon the electric field

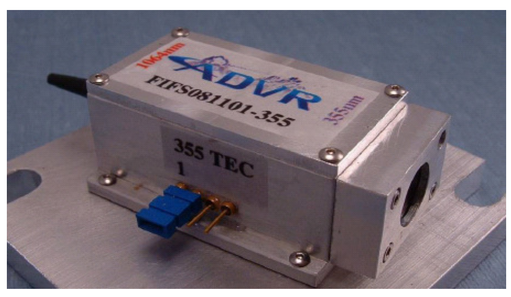
Beam deflection can be controlled with the applied voltage

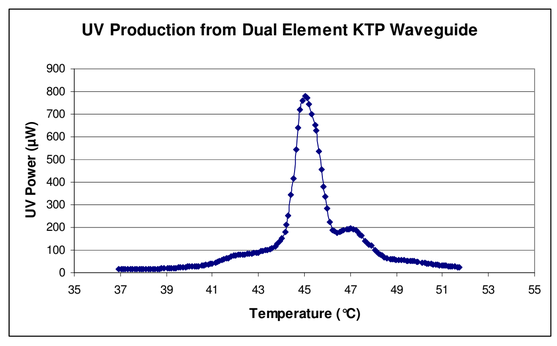




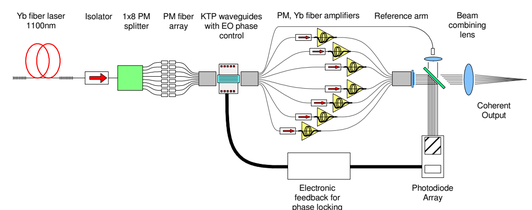


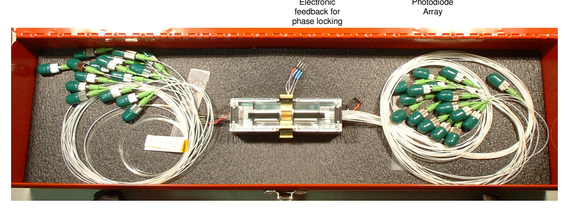
SHG + SFG -> uv generation





Arrayed Waveguide Devices





AdvR is interested in pursuing teaming opportunities with both academic and industrial institutions involved in experimental implementations of MQCO using on-demand photon sources, uv sources, low-loss switches, or other bulk or waveguide nonlinear devices.

Contact
Dr. Philip Battle
VP Technology
battle@advr-inc.com
www.advr-inc.com
(406) 522-0388